

WARD (H. A.)

CATALOGUE

—OF—

HUMAN SKELETONS

—AND—

Anatomical Preparations

FOR SALE BY

HENRY A. WARD,

Natural Science Establishment

ROCHESTER, N. Y.

E. R. ANDREWS, PRINTER AND BOOK BINDER, 1 AQUEDUCT ST.



Actual Skeletons.

The human skeletons and parts of skeletons offered in the following series are of *first quality* in every particular of bleaching, mounting and other preparation. A portion are imported from Paris; the balance are prepared by Parisian workmen in my own establishment.

Adult Human Skeleton, mounted, with Suspension ring.

Price, \$40 to \$50*

Ditto: Mounted with bronzed standard on Black Walnut pedestal, and with cambric tunic.

Price, \$50 to \$60

Ditto: Mounted in handsome Ash case, with extensible bracket, and lock and key.

Price, \$75

Ditto: Disarticulate. With bones of one hand and one foot united by artificial ligaments.

Price, \$28

Adult Human Skull.

Price, \$8 to \$12

Ditto: Disarticulate. In box with compartments.

Price \$15

Ditto: With horizontal section.

Price, \$10

Ditto: Mounted with various sections, showing special parts.

Price, \$20

Ditto: Mounted *à la Beauchene*, with bones slightly spaced. Under glass shade.

Price, \$55

Skull, representing the three component vertebræ; after Oken.

Price, \$18

Skull of Child, cut away on the jaws, so as to show the first and second dentition.

Price, \$18

Adult Arm, with scapula. Bones united with artificial ligaments.

Price, \$10

Adult Leg, with portion of pelvis. Bones united with artificial ligaments.

Price, \$12

Adult Hand or Foot. Bones united with artificial ligaments (twisted sinew), allowing the bones to be separated or drawn together in their proper places.

Price, \$5

*The prices of the Mounted Skeletons vary with the whiteness, quality of teeth and size of the individual specimen.



Infant Skeleton. Disarticulated, and bones mounted <i>with spaces</i> : under glass, 23 x 16 inches square.	Price, \$35
Infant Skull.	Price, \$4 to \$6
Pelvis (male or female), with artificial ligaments.	Price, \$12
Series of eight Human Fœtuses. Each mounted separately, in a glass case. (The largest 16 inches high, the smallest 2 inches.)	Price, \$65

SKULLS AND SKELETONS OF RACES.

Skull , of ancient Egyptian (Mummy).	Price, \$12 to \$15
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Ditto: Siamese.	Price, \$8 to \$10
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Ditto: Maori (New Zealand).	Price, \$6 to \$10
Ditto: Peruvian.	Price, \$12 to \$15
Ditto: Cheyenne Indian.	Price, \$12
Ditto: Pawnee.	Price, \$4 to \$10
Ditto: Sioux.	Price, \$7 to \$10
Ditto: Flat Head.	Price, \$10 to \$15
Ditto: Huron.	Price, \$15
Ditto: Indian, Kodiak (Alaska).	Price, \$10
Skull of Sioux Indian. Disarticulate.	Price, \$60
Ditto: Mounted.	Price, \$90
Ditto: Maori—Mounted.	Price, \$100
Ditto: Australian Aborigines (N. S. Wales), Mounted.	Price, \$90
Ditto: Chinese—Disarticulate.	Price, \$55
Ditto: Mounted.	Price, \$90

Papier Mache Anatomical Models

OF

RAMMÈ AND SODTMANN.

These models, prepared by Drs. Rammè and Sodtmann, of Hamburg, are of a substance which they call *stone pasteboard*, moulded and colored very skillfully after nature. They have full detail of execution, and many are made to open and take to pieces to display internal structure, as in the Eye, Ear, Heart, Thorax, &c., &c. Most of them are accompanied by printed explanations.

The general effect is so good, and the cost so very moderate, that we can with pleasure recommend these models to College Teachers of Anatomy and to Medical Students.

A full set of these models kept constantly on hand.

No. 1. **Head**, cut in vertical section through the median line, showing the bones of skull, Fossa, Cerebrum and Cerebellum, Medulla oblongata, Nasal fossa, Larynx, Trachea, Tongue, Gums, Œsophagus, &c., in natural size.*

Price, \$7

No. 2. **Head**, with muscles, Arteries, Veins, Nerves and Glands laid bare. The *sterno-cleido-mastoideus* muscle lifts off, showing the large vessels which lie beneath.

Price, \$10

No. 3. **Head**, with skull laid bare. In the dissected jaw and roots of the teeth the blood-vessels and nerves are visible; the eye can be removed, and shows the six muscles, &c.

Price, \$10

* All the models are of natural size unless otherwise stated.

No. 4. **Head.** The same as No. 3, but prolonged below, showing the deep-seated muscles of the throat; the Larynx, with the thyroid gland; the Clavicle, and its bearing point on Sternum and Scapula. Price, \$12

N. B.—Heads 1-4 are in relief, on black varnished tablets.

No. 5. **Head** 2 and 4, united at median (vertical) line, and standing free on pedestal. Price, \$14

No. 6. **Head** 2 and 4, similarly united. Price \$15

No. 7. **Half of Head** to right of median line showing externally muscles, arteries, veins, nerves, clavicle and its attachment to sternum and scapula, with same section as head No. 1. Price, \$15

No. 8. **Full sized Head** bisected to left of median line, the right half being the same as No. 7. The left side shows externally the same muscles, etc., as No. 4, but has the left half of brain removable and shows the various parts to left of median line. Price, \$25

No. 9. **Brain**, free; separable in halves by a vertical section, which cuts both the Cerebrum and Cerebellum; below are seen the twelve Nerve roots. Price, \$4.50

No. 10. **Brain**, lying free and separable (as before) in the horizontally bisected head, which stands upright on a pedestal. Lifting out, it leaves visible the inner markings of the skull, or brain cavity. The neck, dissected behind, shows a longitudinal section of the vertebral column, with the Spinal marrow and the Cervical nerves. Price, \$10

No. 11. **Ear**, greatly enlarged; separable into the Auditory ossicles, the Tympanum and Labyrinth. The latter opens and shows the Ampullae, the Cochlea and the branching of the Auditory nerves. (The small inner portions are on one-half larger scale than the outer.) Price, \$16

No. 12. **Ear**, smaller and simpler than the previous, and not separable. Price, \$4

No. 13. **Eye**, separable into Cornea and Chorion, Vitreous body and Lens. The eye-ball is five inches in diameter. Price, \$13

No. 14. **Eye**, separable, but smaller and simpler than the preceding. Diameter of ball, three and one-half inches. Price, \$5

No. 15. **Larynx**, separable longitudinally; one-half with the Muscles, the other half showing the Cartilage. Price, \$4

No. 16. **Tongue**, with the Epiglottis; one half is covered by the Mucous membrane and the Gustatory papillæ, the other has the Nerves and Salivary glands laid bare. Price, \$3.50

No. 17. **Larynx and Tongue**, separable from each other, and each separable in halves through a median vertical line. Price, \$8

No. 18. **Heart**, enlarged three times, with the adjacent Arteries and Veins. The sections on hinges open and show the two Auricles and Ventricles with their valves. Price, \$8

No. 19. **Heart**, with the same detail of parts, but of natural size. Price, \$5

No. 20. **Thorax**, opened. The Lungs are separable, and show the ramifying of the Bronchial tubes, the Arteries and the Veins. The Bronchial cells are also visible. The Heart (No. 19) is removable. The Diaphragm is in place. Price, \$18

No. 21. **Bowels**. All parts are removable: the Stomach, Spleen, Gastric juice glands, Liver, Gall-bladder, Mesenteric vein, and great and small Intestines. One Kidney is separable. The whole upon cushion. Price, \$28

No. 22. **Trunk or Torso**. This is made of No. 20 and 21, with Head No. 5. The outside of the body, on its right half, gives the Muscles and the Veins laid bare. The whole on cushion. Price, \$70

No. 23. **Small Torso** (12 inches long), opened *in front*, showing Larynx, Trachea, Veins, Heart, Lungs, Mesentery, Stomach, Liver, Entrails, &c. One lung-lobe is separable, also the Entrails. Price, \$6

No. 24. **Small Torso** (same size as previous), opened *behind*. Price, \$6

No. 25. **Digestive Apparatus**, reduced to three-fourths size; not separable. The Œsophagus, Stomach, Spleen, Liver (the latter turned back to show the Gall-bladder, &c.), and Entrails are represented, with base of head and mouth cavity. The total length is 22 inches. On black varnished tablet. Price, \$8

No. 26. **Section through Skin**, greatly enlarged; shows the Dermal layers, Sebaceous and Hair follicles, Perspiratory glands (partly opened), Pigment cells, Arteries, Veins, and Papillæ of touch. The whole on a tablet 12 inches square. Price, \$6

No. 27. **Muscular Arm**. This arm, taken off at the shoulder, shows all the Muscles of arm and hand, with the Ligaments and the main Arteries, Veins and Nerves. Price, \$14

No. 28. **Hand**, with Muscles, &c. Price, \$3.50

No. 29. **Hand (skeleton)**, with Ligaments. \$2.25

No. 30. **Muscular Leg**, with similar detail as in arm, No. 25. Price, \$18

No. 31. **Foot**, with Muscles, &c. Price, \$4

No. 32. **Foot (skeleton)**, with Ligaments. Price, \$3.50

AUZOUX' Anatomical Preparations.

ANATOMIE CLASTISQUE

OF

Dr. AUZOUX, Paris.

These *Klastic* Models of Animal and Vegetable Anatomy issued by Dr. Auzoux, of Paris, have been so universally accepted as a *chef-d'œuvre* in this department of scientific illustration that it seems quite unnecessary to say any words in their praise. No similar models have ever been undertaken giving the same abundance of detail or possessing the same exquisite excellence and beauty of execution. They are largely distributed through the University Museums and the Schools of Medical Science and Anatomical Study throughout all Europe. In America they are favorably known in a few of our higher Institutions which are so fortunate as to possess some portions of the series.

Dr. Auzoux has honored my Natural Science Establishment by giving me the agency for these models for the United States. Orders sent to me are promptly attended to and the objects obtained from Paris at the earliest moment and with the least possible expense for transportation. It must be stated that the time necessary for filling an order by the Auzoux firm (owing to the great call for these models) is very considerable. Therefore application should be made at the earliest possible date.

HENRY A. WARD,

Natural Science Establishment,

ROCHESTER, N. Y.

N. B.—At the death of Dr. Auzoux a new Catalogue was issued (1880) in which the prices of many of the pieces were raised in a notable manner. We have copied these prices in the following list.

The prices given are in French coin, which will be estimated at 5 Francs to the American dollar. The simple cost of boxing and transportation will be added in the case of all *large* pieces. Duty, too, will have to be paid on objects for private individuals. For institutions of learning, the models enter the country *duty free*.

I may say, that the special advantage which still remains to parties who order these models through me, is, that by my arrangements with the Auzoux establishment, they can obtain them in a much less time.

H. A. W.

No. 1. MAN, complete, 6 feet high, exhibiting the muscles, arteries, veins, nerves and viscera, detachable and showing in detail over 2,000 objects, comprising nearly all parts treated in the most complete descriptive anatomy. * Francs, 3,000.

No. 2. MAN, complete, 3 feet 9 inches high, with same details as the preceding.
Francs, 1,500

No. 3. MAN, complete, 6 feet high, for the use of institutions not making a speciality of medicine; showing upon one side the superficial muscles, arteries and veins, on the opposite side the muscles, arteries, veins and nerves of the lower layer, and containing in the splanchnic cavities the same organs as the complete model, equally separable and dissecting.
Francs, 1,200.

No. 4. MAN, incomplete, 3 feet 9 inches high, arranged like the preceding.
Francs, 750.

No. 5. MODEL OF WOMAN of the same size and attitude as the Venus de Medicis, showing the superficial muscles, veins and arteries, and internal and external generative apparatus. The anterior wall of the abdomen is detachable, exhibiting beneath all organs contained in the thoracic and abdominal cavities, the organs of generation, muscles, nerves, arteries, veins and all the viscera; these can be removed separately. Francs, 1,000.*

No. 6. PELVIS OF WOMAN, with the external and internal organs of generation, lumbar, vertebræ, diaphragm, muscles, the aponeuroses of the perineum, arteries, veins and nerves.
Francs, 300.

No. 7. PELVIS OF WOMAN with the external and internal organs of generation, and two uteri, showing the fœtus at 1 and 3 months.
Francs, 150.

No. 8. OÖLOGY. Development of the germ in mammals. Suite of more than 20 models, greatly enlarged, showing the formation of the ovule in the ovary, its passage in the fallopian tubes and fecundation, the vitelline visicle, allantoid vesicle, speck and blastodermal leaves from the 1st to the 30th day, or from the formation of the ovule in the ovary until the formation of the embryo, allowing one to follow day by day the changes of the germ and its envelopes, and resuming all the modern works on this subject.
Francs, 300.

No. 9. SET OF EIGHT UTERI, showing the fœtus at 1, 2, 3, 5, 8 and 9 months; with examples of ovarian and tubary gestation.
Francs, 300.

No. 10. EGG OF ÆPIORNIS, of natural size (equal to 148 hen's eggs), with four sections, allowing one to study the structure of the fresh egg of a bird, and follow the formation from the germ to its complete development. This gigantic model permits the following of the metamorphoses of the vitellus and viteline vesicle, the formation of the atlantois, and simplifies the study of embryology not only in the class of birds, but in animals.
Francs, 150.

No. 11. PELVIS OF MAN, with external and internal organs of generation, muscles, aponeuroses of the perineum, arteries, veins and nerves.
Francs, 300.

No. 12. BRAIN OF MAN, showing Cerebrum, Cerebellum and other parts of the brain, upon which by means of sections made after the manner of Vicq d'Azyr one can follow the medullary fascicles of the bulb, and show the form of each constituent part of the encephalic mass, the annular protuberance, the medulla oblongata and the origin of the cranial nerves.
 Francs, 150.

No. 13. CEREBELLUM and entire length of the spinal cord, with the origin of the spinal nerves, anterior and posterior roots.
 Francs, 50.

No. 14. BRAIN of man greatly enlarged. Upon this piece one can follow the course of the nerve fibres in every part of the encephalic mass. This model, designed after dissections made upon brains hardened with chromic acid according to the directions of Dr. Luys, sums up the labor of the ancient and modern anatomists. Not only does it enable one to see the form of each peculiarity remarked in the cerebrum, cerebellum, bulb and upper part of the spinal cord, but it places within the comprehension of all the mechanism by which impressions arrive at certain portions of the brain and by which the will is transmitted to each of our organs. This entirely new method of studying the brain opens a great career of discovery and observation to philosophers and physicians.
 Francs, 300.

No. 15. BRAIN of man of natural size, showing upon one of the hemispheres the anatomy, upon the other the dissections of Vicq d'Azyr, which enable one to see each anatomical peculiarity noted in the older authors.
 Francs, 225.

No. 16. DURA MATER, with a portion of the base of the skull, one-half larger than nature, exhibiting this membrane in its entire extent, its folds, venous sinuses, glands of Pachioni, etc.
 Francs, 80.

No. 17. ADULT HEART, separable in two portions, showing the arrangement of the cavities, muscular fibres, arteries and veins, with their orifices, valves and nerves.
 Francs, 50.

No. 18. HEART OF FŒTUS, arranged like the preceding and showing besides the disposition of the orifice of Botal, Eustachian valve, arterial canal, etc.
 Francs, 50.

No. 19. EYE complete, greatly enlarged. Upon this new edition are found, as upon the preceding ones, the muscles, arteries, veins, nerves, membranes, vitreous humor, crystalline lens, etc., each part detachable; and besides the various microscopic layers of the retina, choroid coat and iris as indicated by modern anatomists.
 Francs, 80.

No. 20. EYE, same as preceding, cut vertically (internal half only) with a portion of the orbit, exhibiting the muscles, arteries, veins, nerves, membranes, humors, disposition of the anterior and posterior chambers, *conjunctiva*, structure of the eyelids, glands of Meibomius, lachrymal canals and membrane of Horner, etc.; and, as in the complete eye, the microscopic details of the iris, choroid and retina.
 Francs, 75.

No. 21. EAR (temporal, two feet long) showing the external, middle and internal ear in its smallest details, expansion of the auditory nerves, etc.; the entire mechanism of which is separable in each part so as to readily render comprehensible the play of the small bones, the functions of the round and oval openings, the membranous canals, endolymph, perilymph, cochlea, infundibulum and action of the air contained in the middle ear, thus making plain to all the marvelous mechanism of hearing.
 Francs, 200.

- No. 22. EAR (temporal, one foot long), exhibiting nearly the same details as above.
Francs, 100.
- No. 23. EAR OF BIRD, greatly enlarged.
Francs, 80.
- No. 24. EAR OF FISH, greatly enlarged.
Francs, 80.
- No. 25. HALF OF HEAD, enlarged, showing in their smallest details all parts found at the base of the skull, the divisions and anastomoses of the fifth and seventh pair of nerves, the nervous ganglia, the eye, ear, nasal fossa, mouth tongue, pharynx and larynx, with the muscles and blood vessels.
Francs, 300.
- No. 26. LARYNX one half larger than nature, with the cartilages, muscles, blood vessels and nerves.
Francs, 25.
- No. 27. LARYNX showing same details as the preceding, and besides, the trachea and divisions of the bronchi to their smallest ramifications.
Francs, 50.
- No. 27 A. LARYNX, half larger than nature, cartilages and vocal cords only, movably articulated so as to demonstrate the glottis, the play of the vocal cords and the marvelous mechanism for the production of sound.
Francs, 25.
- No. 28. LARYNX, greatly enlarged (one foot long). All the portions, muscles and cartilages are separately removable. This model shows the action of each muscle of the vocal cords and the mechanism by which the voice is produced.
Francs, 150.
- No. 29. TONGUE (in the same proportion) which can be adjusted to the larynx, showing in their smallest details the muscles, glands, nerves and blood vessels.
Francs, 150.
- No. 30. HAND (one half larger than natural), with muscles, tendons and tendinous sheaths, disposed in such manner as to show the action of the inter-osseus and lumbrical muscles indicated by Dr. Duchenne, of Boulogne, the arteries, veins, nerves, corpuscles of Pacini, and a portion of the skin, with its various layers.
Francs, 200.
- No. 31. GORILLA (height 4 feet 9 inches) with complete anatomy, viz. : bones, muscles, arteries, veins, nerves and viscera, all the organs of which, reproduced from life, are disposed in the same manner as in the complete man so as to be separably removable.
Francs, 3,000.
- No. 32. SAME., with bones, muscles and viscera only.
Francs, 2,000.
- No. 33. GORILLA. Skeleton (Klastic).
Francs, 500.
- No. 34. ARAB HORSE, complete (4 feet 3 inches high), offering in detail more than 3,000 objects, and separating into 97 pieces, showing upon one side the muscles, nerves and blood vessels of the superficial layer which are not removable; and upon the other side the muscles, nerves, arteries and veins, detaching one by one, as in dissection, from the superficial layer to the skeleton. In the splanchnic cavities are found all the organs contained therein, which can be removed and studied separately. This model of the horse, which leaves nothing to be desired, has been adopted by the cavalry corps, veterinary and agricultural schools of France, and has been procured by many foreign governments as a means of popularizing the ideas of anatomy and physiology necessary for the amelioration of the Equine race, and for the choice, employment and preservation of the horse.
Francs, 4,000.

No. 35. HORSE, incomplete, exhibiting upon one side the muscles, nerves, arteries and veins of the superficial layer, and on the opposite side those of the inner layer only, and in the splanchnic cavities all the organs separately removable, as in the complete model.

Frans, 2000.

No. 36. JAWS OF HORSE, showing clearly the age at various epochs of life, from birth to the most advanced age, with examples of dentition of crib-biting horses, etc. Set of 30 models.

Frans, 400.

No. 37. DIAGRAM, showing in relief the form and organization of horses' teeth.

Frans, 20.

No. 38. JAWS OF OX, showing clearly the age at various epochs of life. Collection composed of 14 models.

Frans, 150.

No. 39. LEG of HORSE from eight inches above the hock, downward, with skin removed. The portion of the hock on which disease occurs is removable and can be replaced by portions of diseased bone, showing by means of thirteen different pieces the various bony maladies known as spavin, curb, splint ring bone, etc.

Frans, 150.

No. 40. LEG, with skin removed, showing diseased bone; not detachable.

Frans, 50.

No. 41. LEG, with examples of bony diseases.

Frans, 50.

No. 42. LEG OF HORSE in state of health, covered with skin.

Frans, 50.

No. 43. BONES OF the LEG OF HORSE, composed of 12 different bones, each bone detachable.

Frans, 50.

No. 44. FLESH DISEASES of the Horse. Leg with one-half of skin removed, giving examples of capped hock, wind gall, etc.

Frans, 50.

No. 45. FOOT OF HORSE, with pastern, showing the horny case, podophyllic tissue, pad of the foot, blood vessels, nerves, etc.; all parts being removable.

Frans, 70.

No. 45 a. THE SAME, dissecting after the manner of Bracy Clark, showing groove intended to receive the charlier shoe.

Frans, 80.

No. 46. HOOF OF HORSE, dissecting after Bracy Clark into wall, sole, frog, etc.

Frans, 35.

No. 46 a. SAME, with Charlier shoe.

Frans, 35.

No. 47. BONY PELVIS of mare.

Frans, 50.

No. 48. UTERUS OF MARE, empty, with internal and external appendages, fallopian tubes, ovaries, etc.; capable of being fitted to the pelvis.

Frans, 80.

No. 49. UTERUS OF COW, with its appendages; empty.

Frans, 80.

No. 50. UTERUS OF COW, with fœtus at four months.

Frans, 100.

No. 51. TURKEY, giving the complete anatomy of a bird, showing the respiratory apparatus, air sacs indicated by Prof. Sappey, etc.

Frans, 400.

- No. 52. BOA CONSTRICTOR, 7 feet 2 inches long, with complete anatomy.
 Francs, 400.
- No. 53. HEAD OF VIPER, enlarged, showing the fangs, poison glands and muscles.
 Francs, 100.
- No. 54. SEA PERCH (*Sciaen aquila*): 4 feet 10 inches long, giving the complete anatomy of a fish, showing muscles, nerves, arteries, veins and viscera.
 Francs, 600.
- No. 55. BEETLE (*Melolontha vulgaris*): type of insects in their perfect state, enlarged twelve times, with muscles, air vessels, nerves and viscera, separating into as many parts as there are organs, and exhibiting in detail more than 600 objects, indicated by numbers.
 Francs, 350.
- No. 56. SNAIL (*Helix pomatia*): as type of the Mollusca, considerably enlarged (13 inches wide, 26 inches long), with muscles, blood vessels, nerves and viscera, separable into as many parts as there are organs, offering in detail over 600 parts, including those contained in the tentacles.
 Francs, 400.
- No. 57. LEECH (*Hirudo medicinalis*): 2 feet long; illustrating the anatomy of the Annelida, showing the vascular, nervous, digestive, locomotive and reproductive systems, according to the latest discoveries.
 Francs, 250.
- No. 58. SILK WORM (*Bombyx sericaria*): 2 feet 6 inches long; typical of the larval state of insects; complete anatomy, showing muscles, nerves, air vessels, viscera, the entire extent of the silk-producing apparatus, including the spinneret and gland described by Dr. Auzoux, as secreting a liquid which most probably changes the silky matter into insoluble thread. In one of the feet one can see the muscles and observe the play of the little hooks which enable the animal to walk, even with its feet uppermost.
 Francs, 300.
- No. 59. BUTTERFLY of the Silk Worm, male and female, greatly enlarged. Upon each specimen is shown the atrophy of the digestive tube and the development of the reproductive organs.
 100 Francs each.
- No. 60. BEE (*Apis mellifica*): $3\frac{1}{4}$ inches long; six forms. Queen, drone, wax maker, worker with propolis and with pollen, on each of which are shown the external and internal characteristics which distinguish each type. Also comb in the same proportion, showing the cells for honey, pollen, and eggs of queens, drones and workers, together with the eggs, larvæ and pupæ, at different stages.
 Francs, 300.
- No. 61. COMPARATIVE ANATOMY. This series has been made to show the operation of the principal functions of life throughout the entire animal series from Man to Zoöphite; and makes readily appreciable the differences presented in the structure and use of the various organs of digestion, respiration, circulation and the nervous system of Mammals, Birds, Reptiles, Fishes, Insects and Molluscs. Price of complete collection, Francs, 1,300.

DIGESTION.

Stomach of Lion,	Francs,	30
“ “ Ruminant,	“	80
“ “ Horse,	“	35
“ “ Rodent,	“	30
“ “ Gramnivorous Bird,	“	30
“ “ Bird of Prey, (Owl),	“	10
“ and intestinal tube of Shark,	“	30
“ “ “ “ Prawn,	“	30
“ of Squid,	“	30
“ “ Grasshopper,	“	30
“ “ Bee,	“	20

Heart of Human Fœtus (size of adult),	Francs, 50
“ and Blood Vessels of Crocodile,	“ 40
“ “ “ “ “ Serpent,	“ 30
“ “ “ “ “ Tortoise,	“ 40
“ “ “ “ “ Dugong,	“ 40
“ “ Gills of Carp,	“ 40
“ “ Blood vessels of Oyster,	“ 20
“ “ “ “ “ Doris,	“ 30
“ “ “ “ “ Cuttle-fish,	“ 30
“ “ “ “ “ Fresh Water Mussel,	“ 25

Cerebrum, Cerebellum, and Spinal Cord of Man,	Francs, 200
“ of Cat, enlarged,	“ 50
“ “ Rat, “ “	“ 30
“ “ Goose, “ “	“ 30
“ “ Viper, “ “	“ 30
“ “ Tortoise, “ “	“ 30
“ “ Carp, “ “	“ 30
“ “ Ray, “ “	“ 30
Nervous system of Molluscs,	“ 5
“ “ “ Radiates,	“ 5
“ “ “ Arachnide,	“ 5
“ “ “ Prawn,	“ 5
“ “ “ Articulates (larva, chrysalis, and perfect insect),	“ 15

RESPIRATION.

No. 65.

Larynx, trachea, lungs and air sacs of Bird,	Francs, 60
Lungs and vocal chords of Frog, enlarged,	" 40
Spiracles, air sacs and heart of Nepa, enlarged,	" 40
No. 66. HEAD OF YOUNG GO- { Skull, still without bony crests, ..	Francs, 50 }
RILLA, { Brain,	" 30 } —80
No. 66A. HEAD OF ADULT { Skull, with commencement of Crests, ..	Francs, 50 }
GORILLA, { Brain,	" 30 } —80
No. 67. HEAD OF OLD GORILLA, { Skull, with large crests,	Francs, 50 }
{ Brain,	" 30 } —80
No. 68. HEAD OF FEMALE GORILLA, { Skull, without crests,	Francs, 50 }
Young, { Brain,	" 30 } —80
No. 68A. HEAD OF FEMALE GORILLA, old, without crests, { Skull, ..	Francs, 50 }
{ Brain,	" 30 } —80
No. 69. BRAIN OF CHIMPANZEE,	Francs, 30
No. 70. HEAD OF ORANG, { Skull,	Francs, 50 }
{ Brain,	" 30 } —80
No. 71. HEAD OF GIBBON, { Skull,	Francs, 30 }
{ Brain,	" 30 } —60
No. 72. BRAIN OF SEAL,	Francs, 30
No. 73. HEAD OF LION, { Skull, ..	Francs, 50 }
{ Brain,	" 30 } —80
No. 74. BRAIN OF PANTHER,	Francs, 30
No. 75. BRAIN OF BEAR,	Francs, 30
No. 76. BRAIN OF WOLF,	Francs, 30
No. 77. BRAIN OF HORSE,	Francs, 60
No. 78. SKULL OF ELEPHANT, separable into two portions, with jaws and tusks, showing the numerous cells which limit the cerebral cavity.	

BRAIN OF ELEPHANT, dissected to show the interior structure, and entering the cavity of the above:

	{ Skull, -----	Francs, 300	} 400
	{ Brain, -----	" 100	
No. 79.	HEAD OF KANGAROO, with skin removed, { Skull, -----	Francs, 20	} 40
	{ Brain, -----	" 20	
No. 80.	HEAD OF CAPYBARA, with the masticator muscles, { Head, -----	Francs, 50	} 80
	{ Brain, -----	" 30	
No. 81.	HEAD OF CROCODILE, covered with the skin, { Head, -----	Francs, 35	} 50
	{ Brain, -----	" 15	

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These preparations for the teaching of Botany and Vegetable Physiology are enlarged ten diameters, showing the constituent parts of the flower, fruit, seed, stalk, etc.

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Complete flower, greatly enlarged,	" 30
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No. 92. BELLADONA (<i>Atropa belladonna</i>): complete flower,	Francs, 40
No. 93. Ditto: Ripe fruit with calyx transversely cut to show disposition of carpels and seeds,	Francs, 40
No. 94. HENBANE (<i>Hyosciamas niger</i>): fruit separable into calyx and capsule. By means of transverse cuts one sees the dispositions of the carpels, seeds and clotte, by means of which dehiscence takes place,	Francs, 60
No. 95. FUCHSIA (<i>Fuchsia anograri</i>): with stem, leaves, flowers before and during bloom, one complete flower and one berry, showing disposition of carpel and ripe seeds,	Francs, 140
Flower alone,	" 60
Berry	" 20
No. 96. COLUMBINE (<i>Aquilegia vulgaris</i>): fruit with detachable carpels, showing the insertion of the seeds upon the placenta,	Francs, 60
No. 97. FRUIT OF YEW (<i>Taxus baccata</i>): separable into fleshy funicle, and seeds opening to show the germ,	Francs, 25
No. 98. GRAIN OF WHEAT (<i>Triticum aestivum</i>): enlarged 30 diameters, with envelopes, flowery mass, germ and appendages, which can be removed and replaced by a germ beginning to develop by the act of germination, on which can be seen all the constituent parts of the plantlet,	Francs, 50
No. 98 A. SPIKELET OF WHEAT (<i>Triticum aestivum</i>): greatly enlarged, showing the husks, little husks, ovary and two pistils, stamens and nectarian glands before and after fecundation; from the researches of Prof. Bidard,	Francs, 50
No. 99. ACORN (<i>Quercus robur</i>): enlarged ten diameters. Capsule, envelopes, dicotyledenous mass and germ,	Francs, 60
No. 100. ACORN with envelopes removed, and the two cotyledons opened to show the germ in a state of germination, sufficiently advanced to distinguish the bud spreading its little leaves and the root bulb its little roots,	Francs, 30

- No. 101. CHERRY, mature, showing the various layers of the pericarp, the ovule and its envelopes, Francs, 40
- No. 102. WOOD. Fragment of dicotyledenous trunk (*Quercus communis*): of three years, greatly enlarged, showing the central pith, spiral vessels or trachæ, medullary sheath, medullary rays, composition of the layers of wood, the annular vessels, rayed and dotted, interstitial spaces, duramen and sapwood, and cambrium separating the woody layers of the bark. Upon these latter, the leaves of which are separated, can be distinguished the epidermis, the corky layer, herbaceous layer, lactiferous vessels and fibres of the wood..... Francs, 80
- No. 103. STRAWBERRY, cut vertically to show the development of the receptacle enclosing in its pulp the numerous seeds or achenia, Francs, 30
- No. 104. GOOSEBERRY(*Ribes uva crispa*): cut vertically, showing the arrangement of the envelopes, the pulp and the seeds, Francs, 30
- No. 105. MULBERRY (*Morus nigra*): cut vertically, showing several simple fruits, surrounded with succulent floral envelopes, constituting a species of berry, Francs, 30
- No. 106. COMFREY (*Symptum officinale*): complete flower, Francs, 40
- No. 107. MELON (*Cucumis melo*): male, flower complete, Francs, 35
- No. 108. MELON: complete female flower, cut so as to show the arrangement of carpels and germs, Francs, 50
- No. 109. Moss. Flower of *Polytrix communis* greatly enlarged, showing the silk, receptacle exhibiting the urn separating into colyptra, tongue, operculum, epiphragm, sporific membrane, spores, etc., Francs, 50
- No. 110. COMPLETE COLLECTION composed of 36 pieces, flowers, fruits, and fragment of woody stem, Francs, 1,600

Casts of Skulls of Races.

The following series of plaster casts of skulls of various races of mankind was taken from specimens in the Museum of the Jardin des Plantes, at Paris, by Prof. Flourens, the Anthropologist and Director of this department of the Museum.

Skull of Neanderthal Man.	Skull of Tasmanian.
Ditto: Engis Man.	Ditto: Caucasian woman.
Ditto: Ancient Imar or Quichua. Bolivia.	Ditto: From Isla de Sacraficios, Gulf of Mexico.
Ditto: Aimara. Ancient tombs of Carangas, Bolivia.	Ditto: New-Zealander.
Ditto: Indian. Ancient tombs of Bolivia.	Ditto: Mongolian.
Ditto: Madura. Java.	Ditto: Malay woman.
Ditto: Chinook Indian. Oregon coast.	Ditto: Chinese.
Ditto: Makoka. Southern Africa.	Ditto: Madagascarene.
Ditto: Nanaquois. Southern Africa.	Ditto: (Ancient) Druid. France.
Ditto: Carib. Leeward Isles.	Ditto: Laplander.
Ditto: Bochisman woman. South- ern Africa.	Ditto: Lapland woman.
Ditto: Negress. Sierra Leone.	Ditto: Russian (Muscovite).
Ditto: From Mozambique.	Ditto: Swede (Aboriginal).
Ditto: From Malabar.	Ditto: Finlander.
Ditto: Bengalese.	Ditto: Kruman, Gaboon, Africa.
Ditto: Patagonian.	Ditto: Negritic.
Ditto: Bedouin.	Ditto: Tartar.
	Ditto: Viti Islander (Isle of Mango).
	Ditto: From Easter Isles (Rapa-Nis).
	Ditto: Mexican.

Price of the series of 37 races, \$80. Price of individual casts, \$2.50.

Casts of Brains.

The Museum of the Royal College of Surgeons, at London, contains a series of Casts of the interior of the cranial cavity, representing exactly the form and size of the brain (when covered by its membranes) of men of various races, and many other species of animals. With a view to diffuse the information to be derived from the study of these casts, and believing that many educational institutions will be glad to avail themselves of the opportunity of possessing them, the Council last year authorized the issue of copies at a low cost. These copies I now offer to my American clients. [The numbers prefixed to the names are marked on the casts.]

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|---|--|
| 1. Man. <i>European.</i> | 15. Entellus Monkey (<i>Semnopithecus entellus</i>). |
| 2. Man. <i>Turk.</i> | |
| 3. Man. <i>Tartar.</i> (Remarkably brachycephalic.) | 16. Macaque Monkey (<i>Macacus cynomolgus</i>). |
| 4. Man. <i>Chinese.</i> | 17. Chacma Baboon (<i>Cynocephalus porcarius</i>). |
| 5. Man. <i>New-Zealander.</i> | 18. Howling Monkey (<i>Mycetes seniculus</i>). |
| 6. Man. <i>East-African.</i> | 19. Squirrel Monkey (<i>Callithrix sciureus</i>). |
| 7. Man. <i>West-African.</i> | 20. Ruffed Lemur (<i>Lemur varia</i>). |
| 8. Man. <i>Bushman.</i> | 21. <i>Galeopithecus volans</i> . |
| 9. Man. <i>Australian.</i> (Port Essington, compressed type.) | 22. Tupaia (<i>Cladobates tana</i>). |
| 10. Man. <i>Australian.</i> (Adelaide, depressed type.) | 23. Tenrec (<i>Centetes ecaudatus</i>). |
| 11. Gorilla (<i>Troglodytes gorilla</i>), adult male. | 24. Hedgehog (<i>Erinaceus Europæus</i>). |
| 12. Chimpanzee (<i>Troglodytes nigger</i>), adult male. | 25. Roussette Bat (<i>Pteropus edulis</i>). |
| 13. Orang (<i>Simia satyrus</i>), adult male. | 26. Tiger. (<i>Felis tigris</i>). |
| 14. Siamang (<i>Hylobates syndactylus</i>). | 27. Dog (<i>Canis familiaris</i>). |
| | 28. Walrus (<i>Trichechus rosmarus</i>). |

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|--|--|
| 29. Porpoise (<i>Phocaena communis</i>). | 39. Hyrax (<i>Hyrax capensis</i>). |
| 30. Dugong (<i>Halicore dugong</i>). | 40. Capybara. (<i>Hydrochærus capybara</i>). |
| 31. Elephant (<i>Elephas Indicus</i>). | 41. Beaver (<i>Castor Canadensis</i>). |
| 32. Hippopotamus (<i>Hippopotamus amphibius</i>). | 42. Rabbit (<i>Lepus euniculus</i>). |
| 33. Pig (<i>Sus scrofa</i>). | 43. Sloth (<i>Cholæpus didactylus</i>). |
| 34. Ox (<i>Bos taurus</i>). | 44. <i>Glyptodon clavipes</i> . Fossil. |
| 35. Camel (<i>Camelus bactrianus</i>). | 45. Kangaroo (<i>Macropus giganteus</i>). |
| 36. Horse (<i>Equus caballus</i>). | 46. <i>Thylacoleo carnifex</i> . Fossil. |
| 37. American Tapir (<i>Tapirus Americanus</i>). | 47. Wombat (<i>Phascolomys ursinus</i>). |
| 38. Sumatran Rhinoceros (<i>Rhinoceros sumatrensis</i>). | 48. <i>Dasyurus ursinus</i> . |
| | 49. <i>Echidna hystrix</i> . |
| | 50. <i>Ornithorhynchus anatinus</i> . |

Price of the series of 50 brains, \$40.

Price of the 10 races of Man, \$18.

The same, mounted on pedestals, \$55

The same, mounted as above, \$25.

Miscellaneous.

BUSTS OF DISTINGUISHED NATURALISTS.

Linnaeus (Charles Linnaeus). Born 1707; died 1778.

Buffon (George Louis Leclerc). Born 1707; died 1788.

Cuvier (George Cuvier). Born 1760; died 1832.

Geoffroy (Etienne Geoffroy Saint-Hilaire). Born 1772; died 1834.

Huxley (Thomas Henry). Born 1825.

The above busts are of very carefully execution, copies of the best models extant,—life size. They are admirably suited for library purposes, and hold a very appropriate position in any natural history museum, or in the council room of scientific societies.

Price of each bust: In white, \$5.00; bronzed, \$6.00

Busts of the Neanderthal Man.

This bust is an ideal restoration, based upon the famous "Neanderthal skull," found in 1857 in the Neanderthal, near Düsseldorf, Rhenish Prussia. Prof. Huxley says of the skull: First, that its extraordinary form is due to a natural conformation, hitherto not known to exist, even in the most barbarous races; Secondly, that it belongs to a period antecedent to the time of the Celts in Germany, and was in all probability derived from one of the wild races of northwestern Europe; and Thirdly, that it is beyond doubt traceable to a period at which the diluvium still existed.

As an effort to represent a *Primitive Man*, this bust is of interest to Archæologists, and finds a very appropriate place over a case or cabinet of Archæological relics.

Price: In white, \$7.00; bronzed, \$8.00

Cast of Livingstone's Arm. (Humerus.)

In his first long journey in Central Africa, Livingstone was at Mabotsa in 1843, attacked by a lion and seriously bitten. His left arm was broken, and from lack of proper surgical care the bone did not properly unite, but the ends lapped over each other, shortening the member. When, in 1873, he died, and his body was brought to England, the doubts which had been raised as to its identity were put at rest by Sir William Ferguson, the celebrated surgeon, who dissected out this peculiarly healed arm bone.

As a pathological specimen, as well as from its history, it is interesting.

Price, \$1.00

Bust of Gorilla. Life size.

In white, \$5; painted after nature, \$6.00

Bust of Orang Outan. Life size.

In white, \$4; painted after nature, \$5.00

Ditto: Chimpanzee. Life size.

In white, \$4.50; painted \$6.00

Cast of Skull of Gorilla.

Adult male, with crest, \$6; adult female, \$5

Ditto: Chimpanzee.

Adult male, \$5

Ditto: Orang Outan.

Male, \$4; female, \$4

The *Quadrumana* recede from man in the following order, making cranial character the test: Gorilla, Chimpanzee, Orang Outan, Gibbon.

Model of a Whale (*Balæna mysticatus*, Linn.)

This was modeled by an artist at the Garden of Plants, Paris, after materials furnished by that Museum. It is useful for illustration in the class, as it shows the proportions of this huge mammal, the position of the "whale-bone," eyes, blow-holes, etc.

25 inches long. Price, \$5.00

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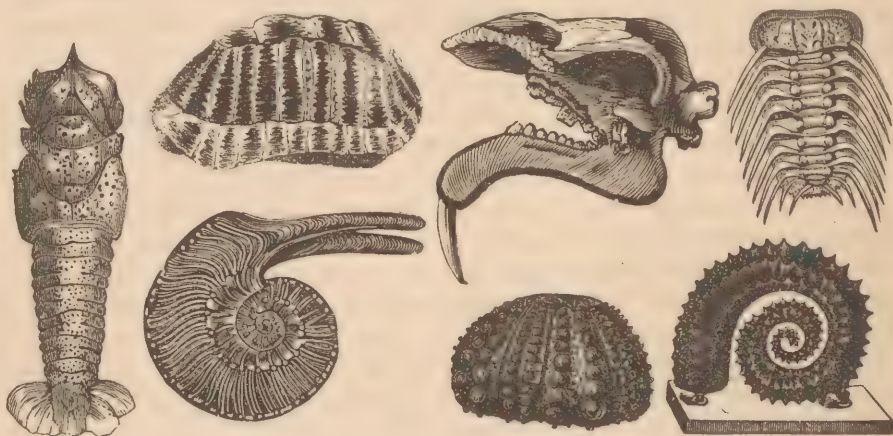
In the autumn of 1866, I issued a series of twelve hundred Casts of notable Fossils. These Casts I had moulded from actual specimens in the great royal and private Museums of Europe, with important additions from American sources. As this method was the only one by which these treasures illustrating the early Life of our planet might be brought within the reach of American students studying on American soil, the enterprise was undertaken with a conviction of its utility to educational science, and with a confidence that the service would be appreciated. The confidence has not been disappointed. The call for these Casts has been large, and is steadily increasing. Our highest institutions of science has been the first to recognize their value and secure their aid. Among the scientific institutions which have most notably obtained this material, are the following: *The Smithsonian Institution; New York State Geological Cabinet; the Chicago Academy of Natural Sciences; the Detroit Academy of Sciences; the Buffalo Academy of Natural Sciences; the Philadelphia Academy; the California Academy; the Boston Natural History Society; the Museum of Comparative Zoology of Cambridge, and the Peabody Museum at Salem, Mass. Also, the Cabinets of Williams, Amherst and Yale; Columbia College, New York; the Mt. Holyoke Female Seminary; the Wesleyan University of Middletown, Conn.; Vassar College, Poughkeepsie, N. Y.; Alleghany College, Meadville, Pa.; Cornell University; Madison University; Syracuse University; Hobart College; University of Rochester; Ohio Wesleyan University; Mt. Union College, Mt. Union, Ohio; Western Reserve College; Ohio State Agricultural College; Vanderbilt University, Nashville, Tenn.; Centre College, Danville, Ky.; Washington and Lee University, Lexington, Va.; University of Virginia; Indiana State University; Minnesota State University; University of California; Illinois Industrial University; University of the Pacific; McGill College, Montreal*, have each secured from \$1,000 to \$3,000 worth of these Casts. Considerable numbers have also been sent to the Museums of England, Austria, Bavaria, India and Australia.

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
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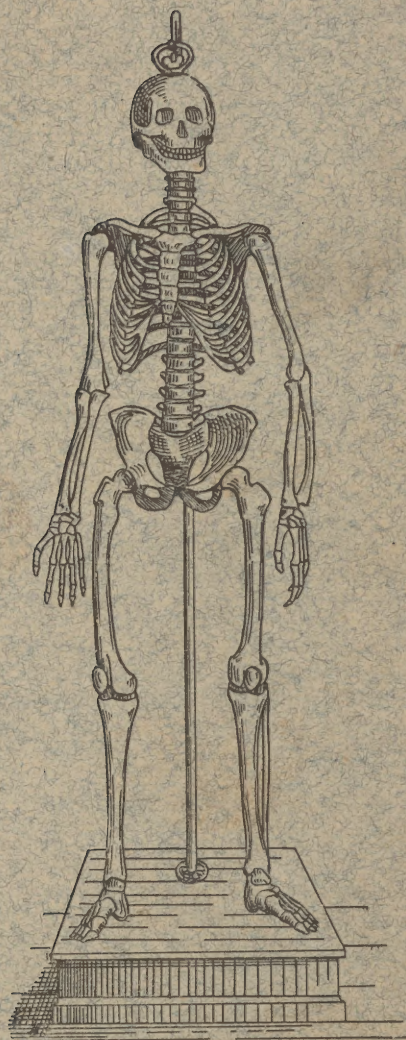
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Plat. 1.